



EPA Comments on CEAP Chesapeake Study

Kelly Shenk to: Robert.Kellogg

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Hi Bob,

Attached are EPA's comments on the draft CEAP report.

Thank you for the opportunity to comment. K



Final EPA CEAP Chesapeake Review 101310.doc

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October 13, 2010

Dr. Robert L. Kellogg
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USDA NRCS Resource Assessment Division
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Dear Bob,

our modeling efforts.

I have met with our full EPA review team from both the U.S. EPA Office of Water and the U.S. EPA Region III's Chesapeake Bay Program Office and compiled our collective comments into the following major subject headings:

1. Bay
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s and Next
 2. Steps in Collaboration
 3. Attachment with more Detailed Comments/Edits
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1. **Comparative Analysis of CEAP Modeling and Chesapeake Bay Watershed Model – Preliminary Results and Next Steps in Collaboration**

Overall we were quite impressed with how similar our findings are, given our different modeling tools, methods, and data inputs that we overviewed with you and your

CEAP Team at our October 12th meeting. The following are the major areas of agreement:

Summary of Areas of Agreement

- conservation on cropland acres in the watershed. The CEAP report states that producers use residue and tillage management practices, structural practices, or both on 94% of cropped acres. The Chesapeake Bay Watershed Model reports

Comment [CS1]:

- reductions that could be achieved from with feasible and proven conservation practices that are currently being successfully applied.

Comment [CS2]:

Areas for Continued Collaboration:

Collaboration has already begun with CEAP models being rerun with CBP point sources data and atmospheric deposition inputs. Based on our current comparative analysis, continued collaboration could be s. We'd like to continue our discussion longer-term actions we can take to continually improve our respective models. And as discussed previously, we'd be happy to work with you to craft joint communications messages on our respective modeling efforts and findings.

2. Comparative Analysis of Management Implications/Directions between CEAP and the Chesapeake Bay Program partnership – Preliminary Findings and Next Steps for Collaboration

In addition to a technical review and analysis of our respective modeling efforts, we also evaluated your findings with respect to the overall management implications and

how well they track with key management directions articulated by EPA and the states through the state Watershed Implementation Plans.

Areas of Agreement:

The CEAP report findings are very consistent with the management directions we are taking in the Chesapeake Bay watershed. We agree with the following findings and messages conveyed in the CEAP report:

- Conservation works and further nutrient and sediment reductions from agricultural conservation are possible. We agree with this overall message and support states efforts to continue and accelerate conservation.
- Targeting conservation in key areas (like areas vulnerable to N leaching) will give us the biggest reduction for dollar spent. We agree with this focus on targeting and support state efforts to target funding in those areas that will have the greatest reductions of nutrient/sediment loads to the Bay and greatest benefits to Bay water quality.
- Suite of conservation practices is important. We agree that there is no one silver bullet for reducing nutrient/sediment loads from agricultural lands. In EPA's 502 Guidance we promote a suite of source controls, in-field controls, and edge-of-field treatment and trapping controls to comprehensively address both sediment and nutrient issues. We also agree that it's important to address the "trade-offs" of conservation practices so that we are addressing fully the water quality concerns. For example, coupling no-till practices (for sediment and P reductions) with manure incorporation (to reduce surface runoff P loads) or coupling nutrient management of manured acres with cover crops (to address N leaching), etc.
- Nutrient management is a key part of the solution to the Bay restoration. We agree with the need for more complete and consistent use of nutrient management. Of utmost importance will be to work with the states to verify current rates of consistent and complete nutrient management for credit in the model and to improve program delivery to ensure that all aspects of nutrient management (rate, timing, form, and method of application) are addressed.
- We agree with your assessment that ch as variable rate technologies often can further reduce nutrient loss from farm fields without negatively affecting yields or the farmer's bottom-line. We are encouraging the states to include these more advanced approaches in the Watershed Implementation Plans.

Areas for Additional Refinement

Phosphorus Management

Clearly the CEAP report only addresses a portion of the agricultural nutrient and sediment loads entering the tidal Chesapeake Bay by focusing solely on cropland acres. Beyond cropland, we have concentrated animal agricultural operations in specific regions of the watershed that result in unique challenges beyond what is describe in the CEAP cropland report. One of the key challenges we face in these animal-dominated systems is extensive nutrient imbalances, particularly high phosphorus soils.

We believe that the approach you took for addressing phosphorus and the assumptions you made merit further description and discussion in the report, beyond the footnote on page 38. Based on your assumptions, we believe that the number of acres needing additional phosphorus management likely are under-estimated. Our specific comments relate to the following text on page 38:

"A nitrogen basis for manure applications is considered sufficient to meet requirements for nutrient management. (Footnote 20)."

Footnote 20: "Meeting criteria for the more strict phosphorus basis for manure application was not evaluated. It is a common practice to use a nitrogen basis for manure application, which usually results in over-application of phosphorus. The farmers practicing sound phosphorus management then wait to apply manure again when soil tests show that phosphorus is needed. This prevents phosphorus from building up in the soil to levels that result in significant loss of soluble phosphorus in surface water runoff. It was not possible to determine this behavior from the survey responses."

In the Chesapeake Bay Watershed, in these animal-dominated regions, a nitrogen basis for manure application is not sufficient to meet requirements for nutrient management. The phosphorus imbalances are well-documented in regions of the Chesapeake Bay watershed that are dominated by agricultural animal operations because of the historic use of N-based nutrient management plans in manure dominated systems (specifically south-central Pennsylvania, Delmarva Peninsula, and Shenandoah Valley). We have some of the highest P imbalances in the nation and, based on P soil test data, the P saturation levels are continuing to rise, despite efforts of some state program to emphasize P-based nutrient management plans. We are working closely with the states to address these P imbalances in the Watershed Implementation Plans.

You describe what "sound phosphorus management" would entail in the footnote, but without a survey of number of farmers or acres under "sound phosphorus management" no inferences like this one can be made regarding how well farmers are managing phosphorus in the Chesapeake Bay watershed. Short of conducting more intensive surveying, one way you could address this issue is to (1) describe the extent of P imbalances in Chesapeake Bay watershed based on your USDA 2002 report and (2) provide more description of your assumptions and approach for P management analysis with appropriate caveats and (3) indicate your sense of whether these assumptions may lead to under-estimating the number of acres lacking complete and consistent phosphorus management.

Connection with Water Quality

There are a number of places (page 9 is an example and page 110 are examples) where you mention the terms "acceptable levels" and "adequate conservation treatment" Can you please qualify these terms and describe if/how they relate to meeting water quality standards and Bay TMDL. Because this report is going to be read by folks who are focused on the appropriate level of conservation to meet nutrient and sediment

allocations for the Bay TMDL, it's important to clarify how you are using these terms and if/how your use of "acceptable" and "adequate" relate to water quality.

3. Attachment with more Detailed Comments/Edits

Attached are more detailed edits to consider as you finalize the report.

ment and review over the past two
input over a decade of model
analyses to refine the conservation
plan, NRCS's chairmanship in the
Agricultural Nutrient and Sediment Workgroup where many of the model discussions
occur, and your current efforts to collaborate with us on your CEAP study.

Models are a valuable part of decision
quality standards through achievable,
important to note that models are not
Ultimately, the water quality and
living resources will be our indicator of a restored Bay, with our models serving as one
set of tools to help us chart a course to a restored Bay.

restoration.

Sincerely,

Kelly Shenk
Agricultural Policy Coordinator

cc Daryl Lund, Lee Norfleet, Lisa Duriancik, NRCS
Gary Shenk, U.S. EPA Chesapeake Bay Program Office
Katie Flahive, U.S. EPA Office of Water
Roberta Parry, U.S. EPA Office of Water

Attachment: Additional Detailed Edits on Draft Report for Consideration

Executive Summary

Please clarify what you mean regarding how "effective" conservation practices have been in reducing pesticide risk.

p. 8., last bullet. Can you add the number of acres in CREP or continuous sign-up to this bullet and on p. 46?

Need to explain the role of agricultural drainage in the region, particularly our extensive public drainage association system on the Eastern Shore. Also include in 1st paragraph, in Effects section and on p. 68.

Chapter 2

Please add a description of how SWAT/HUMUS deal with artificial drainage —specifically ditches like we have on the Eastern Shore. It is not clear from the current explanation.

On p. 23 there is a statement that atrazine is the only pesticide modeled. That should be made clear in the Executive Summary rather than using the general term "pesticides" when the data only refers to atrazine.

It would be helpful to make clear that this analysis does not evaluate streambank sediment at the edge of farm fields.

Chapter 4

p. 78 Can you separate out the amount of soluble P in drainage that moves to surface water from the total soluble P lost?

What does "Change in soil phosphorus" mean as a loss pathway? It should be explained on p.77.